

Claims

It is claimed:

1. A dual hole punch for perforating at least one sheet of paper with dual non-circular holes, comprising:

a base plate having an engaging surface for substantially horizontal engagement of the at least one sheet of paper;

a guide bracket having a first portion and a second portion extending from the first portion of the guide bracket, the first portion of the guide bracket fixedly mounted to a first portion of the engaging surface, the second portion of the guide bracket extending adjacent to and spaced apart from a second portion of the engaging surface to define a substantially horizontal slot having a wall surface extending between the engaging surface and the second portion of the guide bracket, the second portion of the guide bracket including a first bore and a second bore extending therethrough, the first and second bores substantially perpendicular to the engaging surface;

a lever arm pivotally mounted to the guide bracket, the lever arm having a first bearing surface and a second bearing surface;

a first punch disposed in the first bore, the first punch having a top end surface and an opposing bottom end non-circular cutting surface, the top end surface of the first punch engagedly coupled to the first bearing surface of the lever arm, the first punch being operable to perforate the at least one sheet of paper in response to movement of the lever arm towards the base plate; and

a second punch disposed in the second bore, the second punch having a top end surface and an opposing bottom end non-circular cutting surface, the top end surface of

the second punch engagedly coupled to the second bearing surface of the lever arm, the second punch being operable to perforate the at least one sheet of paper in response to movement of the lever arm towards the base plate.

2. The dual hole punch of claim 1, wherein each of the bottom-end non-circular cutting surfaces of the first punch and the second punch comprise a rectangular cutting surface.

3. The dual hole punch of claim 1, wherein each of the bottom-end non-circular cutting surfaces of the first punch and the second punch comprise an elongated cutting surface.

4. The dual hole punch of claim 1, wherein each of the bottom-end non-circular cutting surfaces of the first punch and the second punch comprise a D-shaped cutting surface.

5. The dual hole punch of claim 1, wherein each of the bottom-end non-circular cutting surface of the first punch and the second punch comprise a modified D-shaped cutting surface.

6. The dual hole punch of claim 1, wherein the engaging surface of the base plate includes a first die and a second die disposed therein, the first die defining a first die aperture configured to receive the bottom end non-circular cutting surface of the first punch and the second die defining a second die aperture configured to receive the bottom end non-circular cutting surface of the second punch.

7. The dual hole punch of claim 1, wherein the first bearing surface extends outwardly from a first planar side wall of the lever arm to engage the top end surface of the first punch, and wherein the second bearing surface extends outwardly from a

second planar side wall of the lever arm to engage the top end surface of the second punch.

8. The dual hole punch of claim 7, wherein the guide bracket further comprises:

a first upstanding flange mounted to the top of the first portion of the guide bracket proximate to the first planar side wall of the lever arm, the first upstanding flange having an aperture therethrough; and

a second upstanding flange mounted to the top of the first portion of the guide bracket proximate to the second planar side wall of the lever arm, the second upstanding flange having an aperture therethrough, the aperture of the second upstanding flange aligned with the aperture of the first upstanding flange.

9. The dual hole punch of claim 8, further comprising a pivot pin fixedly mounted between the first planar side wall of the lever arm and the second planar side wall of the lever arm, the pivot pin extending through the aperture of the first upstanding flange and the aperture of the second upstanding flange for rotative movement of the lever arm about the pivot pin during operation of the dual hole punch.

10. The dual hole punch of claim 1, further comprising:

a first resilient member disposed around the first punch, a first end of the first resilient member coupled to a first lip radially disposed in the first bore and a second end of the first resilient member coupled to a radially extending flange disposed proximate to the top end surface of the first punch, the first resilient member biasing the first punch away from the base plate; and

a second resilient member disposed around the second punch, a first end of the second resilient member coupled to a second lip radially disposed in the second bore and a second end of the second resilient member coupled to a radially extending flange disposed proximate to the top end surface of the second punch, the second resilient member biasing the second punch away from the base plate.

11. The dual hole punch of claim 1, further comprising an adjustable paper guide assembly adapted to position the at least one sheet of paper for desired alignment with the first punch and the second punch.

12. The dual hole punch of claim 11, wherein the adjustable paper guide assembly comprises:

a first rod assembly adapted to reciprocally move within at least one aperture formed in a first side of the base plate, the first rod assembly having at least one reciprocally moveable rod and an angle bracket perpendicularly mounted to a first end of the at least one rod of the first rod assembly; and

a second rod assembly adapted to reciprocally move within at least one aperture formed in a second side of the base plate opposed to the first side of the base plate, the second rod assembly having at least one reciprocally moveable rod and an angle bracket perpendicularly mounted to a first end of the at least one rod of the second rod assembly.

13. The dual hole punch of claim 12, wherein the at least one rod of the first rod assembly is adapted to interlink with the at least one rod of the second rod assembly, and wherein linear reciprocal movement of the first rod assembly causes equal linear reciprocal movement of the second rod assembly.

14. A hole punch for perforating at least one sheet of paper with at least one non-circular hole, comprising:

a base plate having a top surface;

a guide bracket attached to the top surface of the base plate, the guide bracket having a first lower portion and at least one second portion, the second portion extending upward from the first lower portion in a substantially vertical direction, the guide bracket including a wall surface extending outward from an outer surface of the second portion of the guide bracket;

a side plate having an engagement surface extending in a substantially vertical direction, the side plate having a lower portion disposed adjacent to and spaced from the second portion of the guide bracket,

the wall surface of the guide bracket, the second portion of the guide bracket and the lower portion of the side plate forming a slot adapted to support the at least one piece of paper in a substantially vertical direction; and

a punch assembly mounted in the guide bracket, the punch assembly including at least one reciprocally and selectively driven punch, the at least one punch having a top end surface and an opposing bottom end non-circular cutting surface,

the side plate including at least one die, the at least one die adapted to receive the bottom end non-circular cutting surface of the at least one punch when the at least one punch is driven towards the side plate by the punch assembly.

15. A dual hole punch for perforating at least one sheet of paper with dual non-circular holes, comprising:

a base plate having a top surface;

a guide bracket attached to the top surface of the base plate, the guide bracket having a first lower portion and at least one second portion, the second portion extending upward from the first lower portion in a substantially vertical direction, the guide bracket including a wall surface extending outward from an outer surface of the second portion of the guide bracket;

a side plate having an engagement surface extending in a substantially vertical direction, the side plate having a lower portion disposed adjacent to and spaced from the second portion of the guide bracket,

the wall surface of the guide bracket, the second portion of the guide bracket and the lower portion of the side plate forming a slot adapted to support the at least one piece of paper in a substantially vertical direction; and

a punch assembly mounted in the guide bracket, the punch assembly including a first punch and a second punch, the first punch having a top end surface and an opposing bottom end non-circular cutting surface, and the second punch having a top end surface and an opposing bottom end non-circular cutting surface,

the side plate including a first die and a second die, the first die adapted to receive the bottom end non-circular cutting surface of the first punch and the second die adapted to receive the bottom end non-circular cutting surface of the second punch when the first punch and the second punch are driven towards the side plate by the punch assembly.

16. The dual hole punch of claim 15, wherein each of the bottom end non-circular cutting surfaces of the first punch and the second punch comprise a rectangular cutting surface.

17. The dual hole punch of claim 15, wherein each of the bottom end non-circular cutting surfaces of the first punch and the second punch comprise an elongated cutting surface.

18. The dual hole punch of claim 15, wherein each of the bottom end non-circular cutting surfaces of the first punch and the second punch comprise a D-shaped cutting surface.

19. The dual hole punch of claim 15, wherein each of the bottom end non-circular cutting surfaces of the first punch and the second punch comprise a modified D-shaped cutting surface.

20. The dual hole punch of claim 15, wherein the punch assembly comprises:
a first bore extending through the second portion of the guide bracket and substantially perpendicular to the engagement surface, the first bore sized to receive the first punch;

a second bore extending through the second portion of the guide bracket apart from the first bore and substantially perpendicular to the engagement surface, the second bore sized to receive the second punch;

a lever arm pivotally mounted to the second portion of the guide bracket, the lever arm having a first bearing surface to engage the first punch and having a second bearing surface to engage the second punch;

a first resilient member disposed around the first punch, a first end of the first resilient member coupled to a first lip radially disposed in the first bore and a second end of the first resilient member coupled to a radially extending flange disposed proximate to the top end surface of the first punch, the first resilient member biasing the first punch away from the side plate; and

a second resilient member disposed around the second punch, a first end of the second resilient member coupled to a second lip radially disposed in the second bore and a second end of the second resilient member coupled to a radially extending flange disposed proximate to the top end surface of the second punch, the second resilient member biasing the second punch away from the side plate.

21. The dual hole punch of claim 20, wherein the first bearing surface extends downwardly from a first planar side wall of the lever arm to engage the top end surface of the first punch, and wherein the second bearing surface extends downwardly from a second planar side wall of the lever arm to engage the top end surface of the second punch.

22. The dual hole punch of claim 21, wherein the guide bracket further comprises:

a first upstanding flange mounted to the second portion of the guide bracket proximate to the first planar side wall of the lever arm, the first upstanding flange having an aperture therethrough; and

a second upstanding flange mounted to the second portion of the guide bracket proximate to the second planar side wall of the lever arm, the second upstanding flange

having an aperture therethrough, the aperture of the second upstanding flange aligned with the aperture of the first upstanding flange.

23. The dual hole punch of claim 22, further comprising a pivot pin fixedly mounted between the first planar side wall of the lever arm and the second planar side wall of the lever arm, the pivot pin extending through the aperture of the first upstanding flange and the aperture of the second upstanding flange for rotative movement of the lever arm about the pivot pin during operation of the dual hole punch.

24. The dual hole punch of claim 15, further comprising an adjustable paper guide assembly adapted to position the at least one sheet of paper for desired alignment with the first punch and the second punch.

25. The dual hole punch of claim 24, wherein the adjustable paper guide assembly comprises:

a first rod assembly adapted to reciprocally move within at least one aperture formed in a first side of the side plate, the first rod assembly having at least one reciprocally moveable rod and an angle bracket perpendicularly mounted to a first end of the at least one rod of the first rod assembly; and

a second rod assembly adapted to reciprocally move within at least one aperture formed in a second side of the side plate, the second rod assembly having at least one reciprocally moveable rod and an angle bracket perpendicularly mounted to a first end of the at least one rod of the second rod assembly, the second side of the side plate opposed to the first side of the side plate.

26. The dual hole punch of claim 25, wherein the at least one rod of the first rod assembly is adapted to interlink with the at least one rod of the second rod

assembly, and wherein movement of the first rod assembly causes equal movement in the second rod assembly.